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Examiner Daniel Kenny
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INFORMAL COMMUNICATION TO EXAMINER KENNY
For Discussion Purposes Only
(fax) 571-273-8300 (phone) 571-272-9951

U.S. Patent Application 10/578,421

Examiner Kenny,

I appreciate you taking the time to briefly review the following proposed amended claim set, along with a second, simpler alternative set (based on claims deemed allowable in the current Final Office Action). Any thoughts or suggestions you have regarding the application and claims are greatly appreciated. Feel free to contact me at ggibbs@ostrolenk.com or at my direct dial (212) 596-0509. I'll follow-up within a day or two if I do not hear from you.

I look forward to discussing the matter with you, and thanks.

Sincerely,
Greg Gibbs

FIRST PROPOSED AMENDED CLAIM SET

(Mark-Up Version)(of 2 proposals)

Claims 1 and 9 are amended; Claims 6 and 14 are canceled.

Claim 1 (currently amended): A three-dimensional wire-woven cellular light structure formed of six groups of orientational-continuous-wires intercrossed with each other at 60 degrees or 120 degrees of angles in a three-dimensional space, a unit cell of the cellular light structure comprising:

a) a first regular tetrahedron member formed of a first to sixth wires, the first regular tetrahedron member being constructed in such a manner that the first wire, the second wire, and the third wire are intercrossed in a plane to form an equilateral triangle, the fourth wire is intercrossed with the intersection point of the second wire and the third wire, the fifth wire is intercrossed with the intersection point of the first wire and the second wire, and the sixth wire is intercrossed with the intersection point of the third wire and the first wire, the fourth wire, the fifth wire, and the sixth wire being intercrossed with one another at a single reference intersection point at which each side is equilateral; and

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b) a second regular tetrahedron member contacted with the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member, the second regular tetrahedron member being constructed in such a manner that the fourth wire, the fifth wire, and the sixth wire pass the reference intersection point and extend further, each of a group of wires is intercrossed with two wires selected from the extended fourth, fifth and sixth wires so that each side is equilateral, the group of wires being in parallel with the first wire, the second wire, and the third wire respectively;

c) wherein the wires are intercrossed with each other at 60 degrees or 120 degrees, further wherein the wire members need not be bonded at intersection points, and the unit cell is repeated in a three-dimensional pattern, thereby forming a wire-woven truss-type structure.

Claim 2 (original): A cellular light structure according to claim 1, wherein, among the six groups of orientational-wires, three groups of orientational-wires forming a vertex of the first or second regular tetrahedron member are intercrossed clockwise or counterclockwise when seen from the front of the vertex.

Claim 3 (original): A cellular light structure according to claim 1, wherein the first and second regular tetrahedron members have a similarity ratio of 1:1.

Claim 4 (original): A cellular light structure according to claim 1, wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10.

Claim 5 (original): A cellular light structure according to claim 1, wherein the wires are any one selected from the group consisting of metal, ceramics, synthetic resin, and fiber-reinforced synthetic resin.

Claim 6 (CANCELLED): ~~A cellular light structure according to claim 1, wherein the intersection point of the wires is bonded by any one selected from the group consisting of a liquid or spray-form adhesive, brazing, soldering, and welding.~~

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Claim 7 (previously presented): A reinforced composite material manufactured by filling with a resin, a ceramic or a metal the empty space of the three-dimensional wire-woven cellular light structure according to claim 1.

Claim 8 (original): A reinforced composite material manufactured by filling with a resin, a ceramic or a metal the empty space of a smaller regular tetrahedron member among the first and second regular tetrahedron members, which constitutes a unit cell of the three-dimensional wire-woven cellular light structure according to claim 4.

Claim 9 (currently amended): A method of fabricating a three-dimensional wire-woven cellular light structure formed of six groups of orientational-continuous-wires intercrossed with each other at 60 degrees or 120 degrees of angles in a three-dimensional space, the method comprising steps of:

a) forming an equilateral triangle by intercrossing a first wire, a second wire, and a third wire in a plane so that each side is equilateral;

b) forming a first regular tetrahedron member by intercrossing a fourth wire with the second wire and the third wire, intercrossing a fifth wire with the first wire and the second wire, intercrossing a sixth wire with the third wire and the first wire, and intercrossing the fourth wire, the fifth wire, and the sixth wire through a single reference intersection point at which each side is equilateral;

c) forming a second regular tetrahedron member contacted with the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member by passing and extending the fourth wire, the fifth wire, and the sixth wire through the reference intersection point, and intercrossing each of a group of wires with two wires selected from the extended fourth, fifth and sixth wires so that each side is equilateral, the

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group of wires being in parallel with the first wire, the second wire, and the third wire respectively; and

d) repeatedly forming the first and second regular tetrahedron member to thereby form a wire-woven truss-type structure wherein the wire members need not be bonded at intersection points.

Claim 10 (original): A method according to claim 9, wherein, among the six groups of orientational-wires, three groups of orientational-wire forming a vertex of the first or second regular tetrahedron member are intercrossed clockwise or counterclockwise when seen from the front of the vertex.

Claim 11 (original): A method according to claim 9, wherein the first and second regular tetrahedron members have a similarity ratio of 1:1.

Claim 12 (original): A method according to claim 9, wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10.

Claim 13 (original): A method according to claim 9, wherein the wires are any one selected from the group consisting of metal, ceramics, synthetic resin, and fiber-reinforced synthetic resin.

Claim 14 (CANCELLED): ~~A method according to claim 9, further comprising a step of bonding the intersection point of the wires, wherein the intersection points of the wires are bonded by any one selected from the group consisting of a liquid or spray-form adhesive, brazing, soldering, and welding.~~

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Claim 15 (previously presented): A method of manufacturing a reinforced composite material by filling with a resin, a ceramic or a metal the empty space of a three-dimensional wire-woven cellular light structure manufactured according to claim 9.

Claim 16 (original): A method of manufacturing a reinforced composite material by filling with a resin, a ceramic or a metal the empty space of a smaller regular tetrahedron member among the first and second regular tetrahedron members, which constitutes a unit cell of a three-dimensional wire-woven cellular light structure manufactured according to claim 12.

SECOND PROPOSED AMENDED CLAIM SET, MARK-UP VERSION (incorporating limitations of previously rejected base claim and intervening claims into claims 8 and 16; other claims are canceled)

Claim 8 (currently amended): A reinforced composite material manufactured by filling with a resin, a ceramic or a metal the an empty space of a smaller regular tetrahedron member among the a first and second regular tetrahedron members, which constitutes a unit cell of the a three-dimensional wire-woven cellular light structure according to claim 4 formed of six groups of orientational-continuous-wires intercrossed with each other at 60 degrees or 120 degrees of angles in a three-dimensional space, each unit cell of the cellular light structure further comprising:

a) a first regular tetrahedron member formed of a first to sixth wires, the first regular tetrahedron member being constructed in such a manner that the first wire, the second wire, and the third wire are intercrossed in a plane to form an equilateral triangle, the fourth wire is intercrossed with the intersection point of the second wire and the third wire, the fifth wire is intercrossed with the intersection point of the first wire and the second wire, and the sixth wire is intercrossed with the intersection point of the third wire and the first wire, the fourth wire, the fifth wire, and the sixth wire being intercrossed with one another at a single reference intersection point at which each side is equilateral; and

b) a second regular tetrahedron member contacted with the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10, the second regular tetrahedron member further being constructed in such a manner that the fourth wire, the fifth wire, and the sixth wire pass the reference intersection point and extend further, each of a group of wires is intercrossed with two wires selected from the extended fourth, fifth and sixth wires so that each side is equilateral, the

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group of wires being in parallel with the first wire, the second wire, and the third wire respectively;

c) wherein the wires are intercrossed with each other at 60 degrees or 120 degrees, and the unit cell is repeated in a three-dimensional pattern, thereby forming a wire-woven truss-type structure.

Claim 16 (currently amended): A method of manufacturing a reinforced composite material by filling with a resin, a ceramic or a metal the empty space of a smaller regular tetrahedron member among the first and second regular tetrahedron members, which constitutes a unit cell of a three-dimensional wire-woven cellular light structure manufactured according to claim 12 in steps further comprising:

a) forming an equilateral triangle by intercrossing a first wire, a second wire, and a third wire in a plane so that each side is equilateral;

b) forming a first regular tetrahedron member by intercrossing a fourth wire with the second wire and the third wire, intercrossing a fifth wire with the first wire and the second wire, intercrossing a sixth wire with the third wire and the first wire, and intercrossing the fourth wire, the fifth wire, and the sixth wire through a single reference intersection point at which each side is equilateral;

c) forming a second regular tetrahedron member contacted with the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10, by passing and extending the fourth wire, the fifth wire, and the sixth wire through the reference intersection point, and intercrossing each of a group of wires with two wires selected from the extended fourth, fifth and sixth wires so that each side is equilateral, the group of wires being in parallel with the first wire, the second wire, and the third wire respectively; and

d) repeatedly forming the first and second regular tetrahedron member to thereby form a wire-woven truss-type structure.

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